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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,842	09/09/2003	Clyde C. Lunsford	011920-1274	3011
24504	7590	11/27/2006	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP			CHOI, PETER Y	
100 GALLERIA PARKWAY, NW			ART UNIT	
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ATLANTA, GA 30339-5948			1771	

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/658,842

Applicant(s)

LUNS福德 ET AL.

Examiner

Peter Y. Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-64 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**NON-FINAL ACTION**

1. Applicants' remarks and amendments in response to the Final Rejection of March 9, 2006, have been carefully considered and entered.
2. Claims 1, 9, 19, 28, 36, 43, and 54 are currently amended by Applicants. Claims 1-64 are pending and are currently examined.
3. Regarding rejection of claims 1-3, 6, 7, 28-32, 34, 36-40, 43, 46-49, 51, 52, 54, and 57-60 under 35 U.S.C. 102(b), Applicants' remarks and amendments are not persuasive to overcome the rejection.
4. Regarding rejection of claims 4, 8-14, 16-18, 33, 35, 41, 42, 44, 45, 53, 55, 56, and 64 under 35 U.S.C. 103(a), Applicants' remarks and amendments are not persuasive to overcome the rejection.

***Claim Objections***

5. Claim 25 is objected to because line 2 of claim 25 recites "a duration of" without disclosing a corresponding numeric value. If Applicants intended to recite "a duration of afterflame no greater than 2.0 seconds when subjected to a vertical flammability test," which is repeated in the specification, then the claim should be amended to reflect the further limitation.
6. Claim 43 is objected to because line 4 of claim 43 recites cellulosic fibers that are "dyable." Dyeable is spelled incorrectly.

Appropriate corrections are required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 45 and 56 recite the limitation "the dye-assistant" in lines 1 and 2 of the claims.

There is insufficient antecedent basis for this limitation in the claims. Claims 45 and 56 depend from independent claims 43 and 54, respectively, wherein the independent claims do not recite a dye-assistant. Therefore, claims 45 and 56 are rejected for lacking proper antecedent basis.

There is proper basis for "the dye-assistant" in dependent claims 44 and 55 respectively. If Applicants intended to further limit dependent claims 44 and 55 with claims 45 and 56, Examiner suggests amending claims 45 and 56 to reflect the further limitation.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3, 6, 7, 28-32, 34, 36-40, 43, 46-49, 51, 52, 54, and 57-60 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,356,700 to Tanaka.

11. The above mentioned claims remain rejected as substantially set forth in the Final Rejection of March 9, 2006, sections 6-8.

*Response to Arguments*

12. Applicants' arguments filed September 11, 2006, have been fully considered but are not persuasive. Applicants argue that the Tanaka reference does not disclose the limitations in independent claims 1, 9, 19, 28, 36, 43, and 54, specifically the features referring to inherently flame resistant fibers "that are dyeable when the fibers are uncrystallized; and cellulosic fibers that are dyeable." As further evidence, Applicants recite the processes found on column 6, lines 7-21 (page 14 of 19 of Applicants' amendment and response), of the reference which teaches the process of coloring the fabric which is not repeated here. Applicants argue that the processes described in the reference describe "how to provide a colored fabric rather than providing a dyeable flame resistant fabric in accordance with Applicants' claimed invention" (page 15 of 19 of Applicants' amendment and response). Since the fabric is colored before the fabric is constructed, rather than dyeing the entire fabric after the fabric has been constructed, Applicants argue that the reference teaches an inefficient process which has "several disadvantages including, expense, and difficulties in production" (page 15 of 19 of Applicants' amendment and response). Essentially, Applicants argue that since the process colors the fibers before the fabric is constructed, instead of after the fabric is constructed, the fibers are merely colored and hence lose their flame resistant characteristics (Applicants' specification, paragraphs 0006 and 0007).

13. Applicants' argument is not persuasive for several reasons. First, Applicants are claiming a limitation which is a property of inherently flame resistant fibers. Second, the process limitation is in the specification and not in the claims, and therefore the process limitation is not read into the claims. Third, the process is only considered for its influence on the structure of the claimed invention. Even if the process limitation influences the structure of the claimed

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invention or the process by which the respective inventions are constructed are not identical, the invention disclosed in the reference and the invention claimed are identical in structure.

14. Applicants are claiming a limitation which is a property of inherently flame resistant fibers. The claim limitation specifically refers to inherently flame resistant fibers "that are dyeable when the fibers are uncrystallized" and cellulosic fibers "that are dyeable." "Dyeable" may be defined by Applicants, but absent any definition, the term does not vary from the common definition of "capable of being dyed" or "to impart or take on color." Applicants only claim that the inherently flame resistant fibers and cellulosic fibers must be dyeable, not that the claimed invention is required to be dyed. Therefore, any inherently flame resistant and cellulosic fiber combination that is capable of being dyed anticipates the claimed invention.

The limitation that the flame resistant fabric is dyeable is interpreted similarly. The components of the fabric, the inherently flame resistant fibers and cellulosic fibers, must only be dyeable, while the fabric may be flame resistant regardless if the components of the fabric are actually dyed. Therefore, any aforesaid combination of inherently flame resistant and cellulosic fiber that is flame resistant, regardless if either of the fibers in the final product are dyed, anticipates the claimed invention.

Tanaka discloses a blend of aromatic polyamide fibers, cellulosic fibers and polyester fibers (column 2, lines 31-42). The aromatic polyamide fibers are inherently flame resistant (Applicants' specification, paragraph 0009 stating that aromatic polyamide fibers are inherently flame resistant) and include meta-type aramid fibers that are capable of crystallization (column 2, lines 61-65). Additionally, the blend is capable of being dyed (column 6, lines 7-22). Therefore, since the inherently flame resistant fibers and cellulosic fibers are dyeable, and thus the flame

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resistant fabric is dyeable as it is only composed of the two fiber components, the Tanaka reference discloses each of the limitations of the independent claims and anticipates the claimed inventions.

15. Applicants' argument that the claimed invention differs from the Tanaka reference due to the process by which the fabric and fibers are dyed is not persuasive as well. Applicants are not claiming the process by which the fabric and fibers are dyed; Applicants are only claiming the structure which results from the process. The process itself is not claimed as a limitation. Additionally, the claims are only read in light of the specification and any limitations from the specification are not read into the claims. Therefore, the process is not read into the claims.

16. The process would only be considered as to the process' structural influence on the claimed invention. Accordingly, if the prior art teaches a structure substantially identical to the claimed structure, and the process claimed does not influence the structure of the claimed invention, then the prior art anticipates the claimed structure.

Applicants argue that the dyeing process in the reference influences the structure of the reference invention differentiating the reference invention from the claimed invention.

Applicants contend that the dyeing process in the reference neutralizes the flame resistance of the fibers since conventional dyeing procedures "can cause damage to the flame resistant fibers, particularly the flame resistance characteristics, or otherwise render the flame resistant fibers susceptible to substantial laundry shrinkage" (page 16 of 19 of Applicants' amendment and response). Tanaka specifically discloses, though, that the fibers may be colored "unless the additive hinders the purpose, functions and effects of the present invention" (column 3, line 64 to column 4, line 2). Tanaka discloses that a purpose for the invention is as a "fabric suitable for

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flame-resistant attire” (column 1, lines 8-13). Additionally, Tanaka discloses that the “fabric is subjected to customary dyeing procedures suitable for dyeing each type of fibers” (column 6, lines 7-22). Therefore, the processes disclosed in Tanaka regarding the dyeing of the fibers must be suitable for dyeing each type of fiber while adhering to the purpose of the invention as a fabric suitable for flame-resistant attire.

Lastly, an additional limitation in the claims require that the inherently flame resistant fibers are dyeable when the fibers are uncrystallized. Regarding the crystallization limitation, Applicants disclose that “[g]enerally speaking, crystallized fibers do not readily accept dye” and that “dyeing is usually carried out only on uncrystallized fibers” (paragraph 0020 of Applicants’ specification). The Tanaka reference does not specifically disclose the crystallized structure of the fibers for dyeing. As Applicants disclose that crystallized fibers do not readily accept dye and as Tanaka specifically teaches using dyeing procedures suitable for dyeing each type of fibers, the inherently flame resistant fibers in the Tanaka reference may or may not be crystallized depending on the dyeing process which is “suitable for dyeing each type of fibers.” Therefore, Tanaka teaches the claimed crystallization limitation.

As the claim limitations requiring the inherently flame resistant fibers to be dyeable when the fibers are uncrystallized and requiring the cellulosic fibers to be dyeable exert no structural influence over the claimed invention, the process is not considered a limitation of the claimed structure. The structure of the reference invention is identical to the structure of the claimed invention. Therefore, the reference anticipates each and every limitation of the claimed inventions in claims 1, 9, 19, 28, 36, 43, and 54.



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17. As to dependent claims 2, 3, 6, 7, 29-32, 34, 37-40, 46-49, 51, 52, and 57-60, Applicants only argue that the dependent claims should be allowable if independent claims 1, 9, 19, 28, 36, 43, and 54. are allowable. As set forth above, claims 1, 9, 19, 28, 36, 43, and 54 are rejected under 35 U.S.C. 102(b) as anticipated by Tanaka. For the reasons set forth above, Applicants' arguments are not persuasive to overcome the rejection to the dependent claims as well.

18. Claims 1-3, 5-7, 19-23, 25, 26, 28-32, 36-40, 43, 46-52, 54, and 57-63 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 4,868,041 to Yamagishi.

19. The Yamagishi reference discloses a cloth for protection against flames wherein wholly aromatic polyamide fibers are disposed as cores and flame-proofed cellulosic fibers and/or wool fibers are disposed around said cores (Abstract). The cloth has an excellent protective property against flames suitable for clothes such as fireman's coats, rescuer's clothes, and military uniforms as wells as fireproofing clothes (column 1, lines 5-15). The flame-proofed cellulosic fibers are cotton, rayon, polynosic or mixed fibers, which are mixed with phosphorus or polyphosphonate compound (column 3, lines 16-36). The cloth can be uniformly dyed (column 2, lines 1-3).

As to claims 2, 47, and 58, the wholly aromatic polyamide fibers are polymetaphenylenedisophthalamide (column 2, lines 52-53).

As to claims 5, 19-23, 25, 26, 42, 50, and 61, the amount of phosphorus is between 1.0% and 5.0% by weight of the cellulosic fibers (column 3, lines 44-55).

As to claims 6, 7, 28-32, 36-40, 51, 52, 62, and 63, since the Yamagishi reference teaches the claimed structural and material requirements, the claimed properties are deemed to be inherently associated with the structure and material.

***Claim Rejections - 35 USC § 103***

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 4, 8-14, 16-18, 33, 35, 41, 42, 44, 45, 53, 55, 56 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,356,700 to Tanaka, as applied to claims 1-3, 6, 7, 28-32, 34, 36-40, 43, 46-49, 51, 52, 54, and 57-60, and further in view of USPN 5,306,312 to Riggins.

22. The above mentioned claims remain rejected as substantially set forth in the Final Rejection of March 9, 2006, sections 9-14.

***Response to Arguments***

23. Applicants contend that if the arguments set forth in section II of Applicants' response overcome the 35 U.S.C. 102(b) rejection, the arguments should additionally overcome the 35 U.S.C. 103(a) rejection. As substantially set forth above in sections 12-17, Applicants are not persuasive in overcoming the 35 U.S.C. 103(a) rejection.

***Claim Rejections - 35 USC § 103***

24. Claims 5, 15, 19-27, 50 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,356,700 to Tanaka, as applied to claims 1-3, 6, 7, 28-32, 34, 36-40, 43, 46-49, 51, 52, 54, and 57-60, and further in view of USPN 4,868,041 to Yamagishi.

25. The features of Tanaka and Yamagishi are set forth above. The Tanaka reference teaches rayon fibers containing a flame retarder, an exemplary flame retarder described as a fire-retarding phosphorus-containing compound. The Tanaka reference does not teach the amount of phosphorus compound flame retardant on the cellulosic fibers. The Yamagishi reference teaches the amount of phosphorus added to the cellulosic fibers. Specifically, the Yamagishi reference teaches that adding less than 1.0% of phosphorus by weight of cellulosic fibers is insufficient to flameproof the fibers (column 3, lines 44-48). Additionally, adding more than 5.0% by weight results in an impediment to spinning property and lowering of hand and drape or strength (column 3, lines 48-52). Therefore, Yamagishi teaches adding 1.0%-5.0% of phosphorus by weight of cellulosic fibers to flameproof the fibers while conserving desired characteristics. It would have been obvious to one of ordinary skill in the art to modify the teachings of Tanaka by adding 1.0% to 5.0% of phosphorus to the cellulosic fibers, as taught by Yamagishi, to flameproof the fibers for the purpose of forming a flameproof fabric with the aromatic polyamide fibers. As the range overlaps the claimed range in claims 5, 15, 19-27, 50 and 61, the claimed range is deemed anticipated by the range disclosed in Yamagishi modifying the teachings of Tanaka.

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***Terminal Disclaimer***

26. The terminal disclaimer filed on September 11, 2006, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent Nos. 6,626,964, 6,132,476, and 6,818,024, has been reviewed and is accepted. The terminal disclaimer has been recorded.

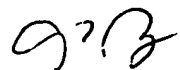
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Y. Choi whose telephone number is (571) 272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Peter Y. Choi

  
ANDREW PIZIALI  
PRIMARY EXAMINER